DOCUMENT RESUME

ED 384 244 FL 023 091

AUTHOR Bancroft, W. Jane
TITLE The Two-Sided Mind: Teaching and Suggestopedia.
PUB DATE 95
NOTE 20p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Brain Hemisphere Functions; Cognitive Style; Foreign Countries; *Lateral Dominance; Learning Strategies; Second Language Instruction; *Suggestopedia; Teacher Influence; Teaching Methods

ABSTRACT

This paper explores how Georgi Lozanov's Suggestopedia incorporates elements of modern right-brain research. For example, issues in Linda VerLee Williams's "Teaching for the Two-Sided Mind" that are applicable to Suggestopedia include visual thinking, fantasy, multisensory learning, music, and direct experience. In Robert Ornstein's "The Psychology of Consciousness," his two modes of consciousness, verbal and nonverbal, may be related to Suggestopedia as well. Students come to class with a two-sided mind; Suggestopedia technique maximizes student learning by using both sides of the mind for learning. As Lozanov mentions the participation of left and right hemispheres of the brain in his process of instruction, it would seem that both Ornstein's and Williams's works should be reviewed when discussing Suggestopedia. Particular detail is reviewed for the roles of visualization, fantasy, multi-sensory modalities (kinesics, vestibular, and visceral systems), background music, and role-playing and simulation in Suggestopedia and brain function. (Contains 14 notes and references.) (NAV)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 384 244

The Two-Sided Mind, Teaching and Suggestopedia

W.Jane Bancroft, Scarborough Campus, University of Toronto

Abstract

In 1971, Georgi Lozanov published in Bulgaria the original version of his thesis, Sugestologiia. In 1972, Robert Ornstein published in California the first edition of his book, The Psychology of Consciousness. Although there is no evidence of direct influence one way or the other, and references in the Lozanov thesis to the involvement of the two brain hemispheres in the suggestopedic process of instruction are not numerous, it is nonetheless interesting to observe to what extent Suggestopedia incorporates elements of modern "right-brain" research.

According to Linda VerLee Williams in Teaching for the Two-Sided Mind, hemispheric specialization has significance for all areas of education. According to Williams, teaching techniques for the right hemisphere are: 1) visual thinking; 2) fantasy; 3) evocative language; 4) metaphor; 5) multisensory learning; 6) music; 7) direct experience. Those of Williams' teaching techniques for the right hemisphere which are particularly applicable to Suggestopedia are: 1, 2, 5, 6 and 7.

Visualization is used in Suggestopedia, especially when the teacher reads the language dialogue over music. Graphic representations, such as wall posters, offer to the students visual images which can be stored and recalled. Significantly better recall of words is achieved when these are "imaged" during the learning process.

The original passive session in Suggestopedia, in particular, fulfills Williams' conditions for creating "fantasy": a comfortable, quiet place, with dim lighting; an instructor with a pleasing voice; a slow-paced presentation; subjects' eyes closed.

Multi-sensory modalities facilitate learning. In addition to auditory and visual stimuli, Suggestopedia uses kinesthetic stimuli - especially gestures.

Suggestopedia uses background music (as well as singing) to facilitate and accelerate learning. It has been hypothesized that, since music is processed by the right brain and language by the left, both hemispheres are activated during the suggestopedic concert session.

Role-playing and simulation create "direct" experience in the classroom. In the suggestopedic language class, students are assigned "foreign" roles to play throughout the course.

Students come to class with a "two-sided mind" and to maximize student learning, right-brain as well as left-brain techniques should be used in the classroom (as, indeed, they are in Suggestopedia).

FL023091

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

W. Jane Bancroft

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

BEST COPY AVAILABLE

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

The Two-Sided Mind, Teaching and Suggestopedia

W. Jane Bancroft

In his thesis, Suggestology and Outlines of Suggestopedy, [1] Georgi Lozanov mentions the participation of the left and right hemispheres of the brain in the suggestopedic process of instruction. In the new and final chapter, "Characteristics of the Desuggestive-Suggestive, Liberating-Stimulating System," added for the official English translation, he outlines the new "means" of the unity of conscious and paraconscious and integral brain activity in Suggestopedia (pp. 259 ff).

In The Psychology of Consciousness, first published in 1972 (i.e., one year later than the original of Lozanov's thesis, Sugestologiia), Robert Ornstein presented the theory of the two modes of consciousness: the verbal, rational, analytic, scientific mode vs. the nonverbal, intuitive, artistic and holistic mode. These two major modes of consciousness were linked to the two hemispheres of the cerebral cortex of the brain, viz. the left and the right. While researchers now tend to dispute the neat symmetry of Ornstein's theory,[2] it is nonetheless appropriate to outline its main elements as the theory of the "two modes of consciousness" relates to Suggestopedia, on the one hand, and has important implications for pedagogy, on the other. [3]

Joined by a large bundle of interconnecting fibers called the corpus callosum, the cerebral cortex of the brain is divided into two hemispheres. The left side of the body is mainly controlled by the right side of the cortex and the right side of the body by the left side of the cortex. (The right ear is connected to the left hemisphere and the left ear to the right hemisphere; images in the left visual field are projected to the right hemisphere, images in the right visual field to the left hemisphere). When we speak of

left in ordinary speech, we are referring to that side of the body and to the right hemisphere of the brain.

According to Ornstein, both the structure and the function of these two "half-brains" underlie "the two modes of consciousness which simultaneously coexist within each one of us." [4] Although each hemisphere shares the potential for many functions and both sides participate in most activities, in the normal person the two hemispheres tend to specialize. The left hemisphere is predominantly involved with analytic, logical thinking, especially in mathematical and verbal functions.[5] Its mode of operation is mainly linear and sequential; it moves from one point to the next in a step-by-step manner. The left hemisphere is specialized to detect features, to recognize the parts that make up a whole. (A capacity for paired associate learning appears to be connected to the left hemisphere).

If the left hemisphere specializes in analysis, the right hemisphere is more holistic and relational. The left hemisphere separates out the parts that constitute a whole; the right specializes in combining those parts to create a whole; it engages in synthesis, pattern recognition and the integration of information. This hemisphere is primarily responsible for visual and spatial processing - our orientation in space, body image, recognition of faces, artistic endeavor. (The left ear, connected to the right hemisphere, is linked to music, in contrast to the right ear which is linked to verbal material). The right hemisphere does not move linearly; it processes information more diffusely than does the left hemisphere and it is more simultaneous in its mode of operation. The ability for creative-associative thinking is associated with the right hemisphere.

The differential specialization of the two cerebral hemispheres is largely based on research into the brain-damaged. For scientists the right and left cerebral

hemispheres have long been the subject of study and debate. Since the 19th century and the research of Paul Broca and Carl Wernicke, it has been found that damage to the left hemisphere very often interferes with (or even destroys) language ability. In contrast (as shown, for example, during research on brain-injured patients during World War II), an injury to the right hemisphere may cause severe disturbance in spatial awareness, musical ability, recognition of other people or awareness of one's own body. This right/left specialization is based on righthanders. Lefthanders, who represent about 5 percent of the population, are less consistent; some have reversed specialization of the hemispheres, but some have mixed specialization, for example, language in both sides.

Since the dominant mode of Western culture is verbal and intellectual, and damage to the left hemisphere of the brain affects speech and reason, the left hemisphere has been termed the "major" hemisphere. Until recently, little consideration has been given to the special capacities of the right hemisphere since the preoccupation of clinical neurologists has been with the left hemisphere and, in particular, with lesions in those specific areas of the left hemisphere that are associated with specific kinds of language disorders. However, according to Ornstein, each hemisphere may be considered the major one, depending on the mode of consciousness under consideration. For example, the right hemisphere is dominant with respect to certain mental processes (such as music) and thinking can be carried through when language is inadequate to express it.

The 1960's research of the 1981 Nobel prize winner, Roger Sperry, and his associates into "split brain" patients (i.e., those who have their corpus callosum severed because of severe epilepsy) provides much of the basis for Ornstein's theory of the "two modes of consciousness." These split-brain patients effectively possess two brains within one body. In tests conducted with split-brain patients, Sperry and his

associates were able to study the functioning of one hemisphere isolated from the other and to gain insight into the specialization of the two hemispheres. Research with the split-brain subjects also indicated that their two hemispheres can simultaneously process more information than can those of a normal person and that their "two brains" can provide a clear example of dual response to a given situation.

In addition to experiments with "patients," experiments conducted with "normal" individuals reveal that we possess two hemispheres. For example, when a tachistoscope is used to introduce information to only the right hemisphere and either a nonverbal or a verbal response is required, the nonverbal response comes more quickly than the verbal one. (A verbal response requires the information to be sent across the callosum to the left hemisphere, which takes some time). The normal brain does indeed make use of lateral specialization, selecting the appropriate area for differential information processing. [6]

The normal brain constantly exhibits electrical activity in the form of very low voltages, as recorded at the scalp by the electroencephalograph or EEG. If the EEG is recorded from both hemispheres of a normal person during the performance of verbal or spatial information-processing tasks, different brain-wave patterns result. During a verbal task, the alpha rhythm in the right hemisphere increases relative to the left and in a spatial task the alpha increases in the left hemisphere relative to the right. The appearance of the alpha rhythm indicates a "turning off" of information processing in the area involved. Studies show that when a person is writing, more alpha rhythm is present in the right hemisphere; while arranging blocks, on the other hand, more alpha is present in the left hemisphere. We tend to turn off the hemisphere not involved in the situation.

According to Ornstein, the recognition that we possess two cerebral hemispheres

which are specialized to operate in two different modes may allow us to understand much about the fundamental duality of our consciousness. This duality has been reflected in classical as well as in modern literature as a conflict between reason and passion, or between mind and intuition. Perhaps the most famous of these dichotomies in psychology is the one proposed by Sigmund Freud of the split between the "conscious" mind and the "unconscious." The workings of the conscious mind are held to be accessible to language and to rational discourse and alteration; the unconscious is much less accessible to reason or to verbal analysis. (Some aspects of "unconscious" communication are gestures, facial and body movements, tone of voice).

In Ornstein's opinion, in most ordinary activities, we simply alternate between the two modes of consciousness (or the two hemispheres of the brain), selecting the appropriate one and inhibiting the other. The two modes of operation complement each other[7] but do not readily substitute for one another. While it has been noticed that some persons habitually prefer one mode over the other, it is the polarity and the integration of these two modes of consciousness, the complementary workings of the intellect and the intuitive, which underlie our highest achievements.

This duality in human consciousness has long been recognized in many cultures. There is a myth and symbolism of left and right, with the left side of the body (i.e., the right hemisphere) being the area of the taboo, the sacred, the unconscious, the feminine, the intuitive. The idea of the complementarity of two major modes of consciousness is hardly new; what is "modern" is a recognition that these modes operate physiologically as well as mentally and culturally. Dichotomies, old and new, [8] which Ornstein attributes to the two modes of consciousness include:

Day	Night
Intellectual	Sensuous

Time, History	Eternity, Timelessness
Active	Receptive
Explicit	Tacit
Analytic	Gestalt
Right (side of body)	Left (side of body)
Left hemisphere	Right hemisphere
Propositional	Appositional
Lineal	Nonlineal
Sequential	Simultaneous
Focal	Diffuse
The Creative:heaven	The Receptive:earth
Yang	Yin
Masculine	Feminine
Light	Dark
Time	Space
Verbal	Spatial
Intellectual	Intuitive
Causal	Acausal
Argument	Experience

Many different occupations and disciplines involve a concentration in one of the major modes of consciousness. Science and law are heavily involved in linearity, duration and verbal logic. Crafts, the "mystical" disciplines and music are more present-centered, aconceptual, intuitive. A complete human consciousness, however, according to Ornstein (pp. 67-68), involves the polarity and integration of the two modes, as a complete day includes the daylight and the darkness. While any significant scientific breakthrough is usually preceded by a good deal of primarily logical, linear thinking, intuitions or moments of insight have most often come to scientific investigators when the normal rational processes are temporarily suspended. Albert Einstein, for example, said of his own creative processes, "The really valuable thing is intuition."

In The Psychology of Consciousness, Ornstein presents arguments in favor of the education of the "intuitive mode." He bases his arguments on "traditional esoteric psychologies" (such as Yoga, Tai Chi, Zen) according to which consciousness becomes more complete if the "complementary mode" (i.e., the right hemisphere of the

brain) is developed or involved. Meditation may have valuable consequences not only for the maintenance of health but also for self-regulation, discipline and concentration. "Western educational systems largely concentrate on the verbal and intellectual. We do not possess a large-scale training system for the other side, but it is just this training which is the specialty of the esoteric psychologies. They form a complement to most of modern, western education" (p. 162).

The realization that we possess two different and complementary ways of processing information - a linear, step-by-step style that analyzes the parts that make up the pattern (in the left hemisphere) and a spatial, relational style that seeks and constructs patterns (in the right hemisphere) stirred considerable excitement among American educators in the 1970's and 1980's and created a desire to explore the applications of hemispheric research to the classroom. It was realized that, while we have a good deal of experience with linear, analytical approaches to education, if we are to teach for the full range of students' cognitive abilities, we must complement those "left-brain" techniques with others which make use of the right hemisphere's preference for patterns and wholes and its visual/spatial capacities (Williams, pp. xi-xii). Research on teaching wherein more than one area of the brain is involved has shown that both learning rates and retention can increase dramatically.[9]

According to Williams in Teaching for the Two-Sided Mind, hemispheric specialization has significance for all areas of education. Traditional teaching techniques should be reevaluated and/or broadened and new teaching techniques created in the light of "new" information about how the brain operates. In the classroom, information can (and should) be presented in a number of different ways in order to allow students to learn more efficiently. "When lessons are presented visually as well as verbally, when students make their own connections between what is to be

learned and what they already understand, and when all the senses are engaged in the learning process, students are able not only to learn in the way best suited to their style, but also to develop a full and varied repertoire of thinking strategies." (Williams, p. 10). In Williams' opinion, there are no right or left hemisphere subjects. There are, however, two major learning styles: one that is primarily sequential and the other that relies more on pattern recognition (even for a subject like mathematics).

According to Williams (pp. 30 ff), teaching techniques for the right hemisphere are: a) visual thinking (i.e., visual strategies and images); b) fantasy (i.e., the ability to generate and manipulate mental imagery); c) evocative language (such as that found in poetry); d) metaphor (it appears that connections between two seemingly unrelated things are probably made by the silent right hemisphere and transmitted to the left through some form of imagery); e) multisensory learning (including not only verbal and auditory stimuli but also tactile and kinesthetic stimuli; while both hemispheres process sensory stimuli, it seems likely that stimuli that are nonverbal are processed primarily in the right hemisphere); f) music (while music can be processed in either hemisphere, most listeners seem to use their right brain); [10] g) direct experience (which presents students with an opportunity to approach the subject more holistically). Those of Williams' teaching techniques for the right hemisphere which are particularly applicable to Suggestopedia are the following: visual thinking; fantasy; multisensory learning; music; direct experience (especially simulation and role-play).

According to Williams, visual thinking is too often associated only with the visual arts and relegated to a single place in the curriculum. However, visual thinking is a part of every subject because it is a basic way of obtaining, processing and representing information. "To ignore its role in any subject is to fail to train students in its use and to deny to those who are primarily visual processors the opportunity to learn in the mode

which comes most easily for them." (p. 85)

The role of visual thinking in the classroom is threefold (Williams, pp. 85ff). It begins with seeing and observation. (Drawing, for example, can improve observation skills). Students need to learn what to look for and how to interpret what they see. (Films and videocassettes can provide valuable sources of visual information). Secondly, students need help in representing information graphically. Drawings, diagrams, mind maps and other graphic representations - preferably in color - are useful teaching aids in that they improve comprehension and enable students to clarify their thinking and to communicate their ideas to others. Finally (and this is especially true in the television age when imagination is stunted), students need help in developing their "inner eye". Visualizing (or visualization), the ability to generate and manipulate visual imagery, helps with a wide variety of tasks including remembering information, learning vocabulary items, performing mathematical functions and solving practical problems involving spatial relations.

Visualization, the ability to recall and construct visual images within the mind, is a very basic thinking mode and an aid to memory that goes back at least to the ancient Greeks. The "loci" method, developed by Simonides, a Greek poet of the fifth and sixth centuries B.C., enabled orators to remember long sequences of information so that they could speak from memory for hours without forgetting a single point. The loci method, in which each item one wants to remember is associated with a given spot in a fixed setting (such as a house with numerous rooms), is useful for remembering in sequence; where sequence is not important, one can create images which associate or connect two or more things without putting them in a fixed setting. Constructing visual images associated with vocabulary items aids in recall. (Vivid, brightly colored, dramatic images are more easily remembered. In the original suggestopedic session, students visualized the "dramatic" events when the teacher read the

language dialogue over music; in the second version, considerable use is made of vivid, colorful classroom posters). Another application of visualization which many teachers use (very often unconsciously) is the suggestion of visual and other sensory images as part of a verbal presentation. A skillful lecturer uses words not only to communicate ideas but also to create a sensory (or multisensory) experience, to make the listener(s) see and feel what is being discussed. Ideas presented by the teacher and which are accompanied by graphic representations offer to the students visual images which can be stored and recalled as a means to retrieve that information.

Students can be helped to learn vocabulary items by using visual memory.[11] They should be reminded to look at the picture before they write and to check the word against the picture after they write it. Visualization can be used in exam preparation.[12] Students can be reminded that they carry with them in their minds pictures of their notes and the textbook. Whenever they encounter difficulty, they should breathe deeply and check their mental image file.

Williams distinguishes between visualization (inner imagery that is fairly static) and fantasy (which is similar to a multisensory movie that tells a story or has an interesting sequence). One obvious advantage of using fantasy is that it can take you places you cannot reach any other way (for example, an exotic country in a foreign language class). Fantasy can produce a more positive attitude toward learning. It also has the power to help some students assimilate and use information which remains inaccessible when presented in more left-brain modes. Positive images and fantasies can help students establish more effective study habits. Although fantasies do not substitute for study, they may make it easier for students to relax, concentrate on their work and study more effectively.

Fantasies include relaxation exercises; observer fantasies (in which one is an

outside observer); and identification fantasies (in which one identifies with some image or object). Identification fantasies stimulate greater involvement than those in which students are observers. (Such fantasies require them to project themselves into the object they are imagining, to feel as it would feel). Fantasies may be suggested (a suggestion is given and the mind waits for a series of images to occur) or guided by the instructor. While one cannot force a fantasy, one can, however, create the conditions which allow images to reach consciousness easily. The mind must be in a state of relaxed attention, alert and receptive to inner imagery. Fantasy can be experienced best in a comfortable, quiet place, with dim lighting. The voice of the instructor should be pleasing (i.e., soft and soothing) and the pace of the suggested or guided fantasy should be slow. Most people concentrate better on fantasy with their eyes closed. (While the original passive session in Suggestopedia fulfills these conditions for creating "fantasy," such adaptations of Suggestopedia as Donald Schuster's Suggestive-Accelerative Learning and Teaching [or SALT] and Lynn Dhority's Acquisition Through Creative Teaching [or ACT] provide better examples of the use of fantasy in the classroom).

In addition to introducing new material and to stimulating writing (by encouraging the students to use their imaginations), fantasy can also serve as a review technique, a means of helping students retain information. By generating sensory images which are connected to the material students want to retain, fantasy gives them a way to remember, a strategy based on imagery as well as words. This approach is especially helpful for those who are less verbally oriented. Care must be taken, however, when introducing fantasy into the classroom; as Lozanov himself has emphasized, negative images and emotionally charged subjects are to be avoided. (Suggestopedic language dialogues are designed to evoke positive emotions in the students). Students' reactions during and after the fantasy should be assessed.

The senses are the means by which we take in information; they tell us what we know about the world around us and form the basis for the development of abstract thought. The sensory system includes not only the five senses of sight, hearing, touch, smell and taste but also the proprioceptive senses - the kinesthetic, vestibular and visceral systems which monitor internal sensations. In Williams' opinion (and in the opinion of many educators), an ideal classroom would be organized around experiences which stimulate all types of thinking - not just linear processes.

The auditory, visual and tactile-kinesthetic senses form the major learning modalities, the primary pathways by which information is taken in. (Kinesthetic and tactile learning are sometimes linked together although they actually involve different systems. The tactile system involves receptors in the skin. The kinesthetic system registers movements; its receptors in the muscles and tendons provide information on body movement). Too often in our classrooms we overlook the kinesthetic component of learning, since it is usually outside of conscious awareness. According to Williams (pp. 154 ff), forms of kinesthetic stimulation which can be used in the classroom include: movement and movement games (these are especially used in Total Physical Response but also, albeit in a more limited way, in Suggestopedia; movement in the classroom is especially appropriate for students who in today's crowded, sedentary society do not get the variety of movement experiences they need); dance (which, as can be seen in the second version of Suggestopedia and Dhority's ACT, can contribute to academic learning and to the development of creativity); gesture (which not only helps communication but also facilitates thinking and expression and aids memory; students, especially those who are primarily kinesthetic, can improve their memories by putting a gesture to each thing they need to remember). In suggestopedic language classes, teachers use gestures to suggest the meaning of new words and expressions in the foreign tongue. Gestures are an important part of communication in

many countries and students communicate much better if they have a gestural as well as a verbal vocabulary.

Music, like art, is an important part of human experience and should therefore be part of education for its own sake. However, music can also be used as an aid to learning. Research with stroke victims indicates that songs actually bridge the hemispheres - that is, the right hemisphere learns the melody while the left learns the words. Therapists find that some patients who have lost the ability to talk can learn to speak and remember simple phrases when the phrases are set to musical fragments (Williams, p. 163). This finding suggests that when students learn verbal information with a song, they may have an extra aid in recalling it. Music helps in retention;[13] singing can make a tedious task enjoyable and keep students' attention and interest. (In the Orff-Schulwerk philosophy of music education, music is used to teach other subjects, to develop creative capacity; students also explore and improvise with different rhythmic patterns through clapping and movement). In foreign language classes, learning songs (folk songs, for example) is an enjoyable way to build vocabulary, learn new language patterns and develop fluency.

In addition to singing, Suggestopedia uses background music to facilitate and accelerate the learning of foreign languages. In the concert session, music is one of the principal tools for inducing a relaxed mental state in which material is more easily absorbed and retained. According to Williams (p. 166), Lozanov's work suggests a "powerful new role" for music in learning. It has been hypothesized that, since music is processed by the right brain and language by the left, both hemispheres are activitated during the suggestopedic concert session.[14]

Textbooks and lectures are usually organized in a linear fashion. Experiential learning, on the other hand, provides students with a "meaningful whole, a total

situation" (Williams, p. 169). According to Williams, even for highly verbal students, direct experience is essential for the development of important cognitive skills. Experiential learning stimulates original thinking and develops a wide range of thinking strategies and perceptual skills which are not promoted by books or lectures. Experiential learning also has the capacity to stimulate more personal involvement and draw students into a subject they might otherwise avoid or find dull. Trips outside the classroom (as in the original version of Suggestopedia where students were led "into the street" for language practice), laboratory experiments, the use of real objects and primary source material all offer opportunities for direct interaction with the phenomena being studied. Simulation and role playing place the students in a "real-life" situation and let them create the experience for themselves.

Simulation is a technique for creating experience through which students can learn about a subject. The teacher designs a situation which is analogous in significant ways to the phenomenon being taught and assigns students roles. Rules are established which allow students to experience the constraints inherent in the situation and to gain insight into the subject. In simulation the students do not become someone else. The roles they play in the simulation are determined by their own reactions to the constraints and opportunities the situation offers. As a teaching technique, simulation is applicable to any subject. One can, for example, simulate a visit to a French café for a foreign language class and require the students to express themselves in French as would be necessary in Paris.

Role playing, like simulation, creates "direct" experience in the classroom. In role playing, the students take the part of other people and try to act as those people would do in a given situation. The students must imagine how the individuals would feel and behave. Generally speaking, they must know at least a certain amount about the persons whose roles they are playing in order to "perform" effectively. In the

suggestopedic language class, students are assigned (or choose) "foreign" roles to play and they maintain these new identities (with accompanying biographies) throughout the course.

According to Williams (p. 190), students come to class with a "two-sided mind." Teachers must encourage them to use it, to develop both types of thinking (left and right brain) so that they have access to the greatest possible range of mental abilities. The role of the teacher and the classroom atmosphere s/he creates is to motivate and maximize student learning. "The richer the banquet we lay, the more students will partake and the longer they will stay at the table" (Williams, p. 194). This statement is true of Suggestopedia.

Scarborough Campus, University of Toronto

Notes

[1]Georgi Lozanov, Suggestology and Outlines of Suggestopedy (New York: Gordon and Breach, 1978), p. 225; pp. 255 ff. All succeeding references to this work will be indicated, in brackets, in the text.

[2]See, for example, Sally P. Springer and Georg Deutsch, Left Brain, Right Brain, 4th edition (New York: W. H. Freeman, 1993).

[3]See also Paul MacLean's theory of the triune brain: A Triune Concept of the Brain and Behavior (Toronto: University of Toronto Press, 1973), pp. 6-66. This theory classifies the evolutionary development of the mammalian brain into three phases: reptilian brain, paleomammalian brain and neomammalian brain. The old mammalian brain consists of the limbic system which controls emotions and feelings; the neocortex, divided into two hemispheres, deals basically with external, environmental events. According to MacLean's theory, creativity and emotional functions are localized in the limbic system rather than in the right hemisphere in hemispheric specialization. Lozanov mentions the involvement of the cortex and subcortex as well as the two brain hemispheres in the suggestopedic process of instruction (Suggestology and Outlines of Suggestopedy [pp. 255 ff]).

[4]Robert Ornstein, The Psychology of Consciousness (San Francisco: W. H. Freeman and Company, 1972), p. 51. All succeeding references to this edition will be indicated, in brackets, in the text.

[5] While speech and phonetic analysis appear to be restricted to the left hemisphere, the right hemisphere has greater linguistic abilities than earlier researchers assumed. The right hemisphere is said to be responsible for intonation patterns, emotional tone, melody, metaphor and humor (Sally Springer and Georg Deutsch, Left Brain, Right Brain [pp. 159-61]). While it does not decode words by a phonetic analysis of the sounds, it appears to recognize them by their spatial (sight) or acoustic (listening) patterns (Linda VerLee Williams, Teaching for the Two-Sided Mind

[New York: Simon and Schuster, 1983], p. 24. All succeeding references to this work will be indicated, in brackets, in the text).

[6] In a procedure called dichotic listening, subjects are fitted with headphones through which each ear hears a simultaneous, competing stimulus. The subject is asked what word or stimulus was heard and the answer tells the experimenter which ear, and thus which hemisphere, had the advantage for processing that stimulus. (Williams, p. 21).

[7]The evidence from both split-brain and brain-injured patients indicates that, in order to perform visuo-spatial tasks successfully, an individual relies on the contributions of both hemispheres (Williams, p. 20).

[8]These dichotomies have been disputed in the sense that they constitute an oversimplified view of hemispheric functioning (Williams, p. 24). Williams substitutes the following "dichotomies" for the use of educators: a) left-hemisphere processing: interested in component parts - detects features; analytical; sequential processing, serial processing; temporal; verbal - encoding and decoding speech, mathematics, musical notation; b) right-hemisphere processing: interested in wholes and gestalts - integrates component parts and organizes them into a whole; relational, constructional, pattern-seeking; simultaneous processing, processing in parallel; spatial; visuo-spatial, musical (p. 26).

[9]As reported in Donald H. Schuster and Charles E. Gritton, Suggestive-Accelerative Learning Techniques (New York: Gordon and Breach, 1986), p. 75.

[10]The perception of music offers an interesting example of how the brain operates. There is some evidence (Williams, p. 27) that it is not the stimulus - the music - that determines where it will be processed but the listener's approach to the stimulus.

Listeners who are relatively unsophisticated in music will show a left-ear (right hemisphere) advantage, but those who are quite "sophisticated" are likely to show a right-ear (left hemisphere) advantage. One can hypothesize, according to Williams, that the naïve, untrained listeners respond to the overall contours of the music, to its "gestalt," while the educated listeners process the same sounds sequentially in a more analytical manner. Researchers cited in Biofeedback and the Arts: Results of Early Experiments, edited by David Rosenboom (Vancouver: Aesthetic Research Centre of Canada, 1976) have reported a left hemisphere (right ear) dominance in musicians who listen "analytically" to musical sequences and a right hemisphere (left ear) dominance in non musicians who listen to the same sequences "holistically" (pp. 71-72).

[11]Schuster reports that significantly better recall of words is achieved when words are "imaged" during the learning process (Suggestive-Accelerative Learning Techniques [p. 78]).

[12]Regarding visualization and exam preparation, see Jean-Yves Peccilo, Se Préparer aux Examens et Concours par la Sophrologie (Paris: Editions Retz, 1987).

[13]Linda Dejin Xia and Loren Alexander, "Music as Mnemonic Device in Second Language Learning," Journal of the Society for Accelerative Learning and Teaching, 12 (1987), 95-106. For the use of music as a memory-training and linguistic-structuring device in the Tomatis Method, see my article, "The Tomatis Method and Suggestopedia: A Comparative Study," ERIC Documents on Foreign Language Teaching and Linguistics, 1982. 28 pp. in microfiche. ED 219 938.

[14]Elizabeth G. Joiner, "Listening from the Inside Out," Foreign Language Annals, 17 (1984), 336.